

Jacqueline Moya
National Center for Environmental Assessment
Office of Research and Development, U.S. EPA

ABSTRACT

Risk Assessments are important components of the decision making process. Therefore, it is critical that the best up-to-date methods, models, and exposure data are available to the exposure and risk assessor to realistically estimate the potential for human and ecological exposures to environmental contaminants. The EPA *Exposure Factors Handbook* is a tool available to exposure assessors which summarizes statistical data on exposure factors necessary to conduct human health exposure assessments. These factors include: water consumption, soil ingestion, inhalation rates, surface area, soil adherence to skin, body weight, life expectancy, food consumption, breast milk consumption, activity patterns, consumer product use, and residential building characteristics. Since its publication, the Handbook has been the primary source of data for human exposure assessments. Many EPA program offices use the data from the Handbook and have adopted its recommendations in their exposure and risk assessments. The use of the Handbook has resulted in more consistency among exposure assessments conducted by the Agency. Although the Handbook is widely used in the Agency, its use has not been limited to EPA. The Handbook has had a wide application among exposure assessors in the U.S. and around the world. In addition to the *Exposure Factors Handbook*, the National Center for Environmental Assessment has published a *Child-Specific Exposure Factors Handbook*, which summarizes exposure data specific to children. The *Exposure Factors Handbook* and the *Child-Specific Exposure Factors Handbook* are the two major components of a more comprehensive program that addresses issues related to exposure factors. The *Exposure Factors Program* is a comprehensive program with the primary goal of compiling, analyzing, and summarizing exposure factors data to be used in future updates of the *Exposure Factors Handbook* and the *Child-Specific Exposure Factors Handbook*. The poster presents an overview of the *Exposure Factors Program*, describes its goals, on-going research, and future plans.

WHAT IS THE EXPOSURE FACTORS PROGRAM?

The Exposure Factors Program is a program to compile, analyze, and summarize exposure factors data to be included in future updates of the EPA's Exposure Factors Handbook and Child-Specific Exposure Factors Handbook.

Documents available on line at www.EPA.gov/NCEA

WHAT ARE THE EXPOSURE FACTORS HANDBOOK AND THE CHILD-SPECIFIC EXPOSURE FACTORS HANDBOOK?

The Exposure Factors Handbook and the Child-Specific Exposure Factors Handbook are tools used by exposure assessors in the EPA and outside which summarizes data on human exposure factors necessary to conduct exposure assessments.

WHAT ARE THE EXPOSURE FACTORS PROGRAM GOALS?

- ◆ Produce an updated version of the EPA's Child-Specific Exposure Factors Handbook by 2005 and EPA's Exposure Factors Handbook by 2007.
- ◆ Keep the handbooks up-to-date through yearly updates to the Guide to Current Literature via the Internet.
- ◆ Provide companion documents to the Handbooks to assist clients in the use of exposure factors data in exposure assessments.
- ◆ Provide consultation services to clients on the use of the data and development of exposure scenarios.

WHAT IS THE IMPACT?

- ◆ The use of the Exposure Factors Handbook and the Child-Specific Exposure Factors Handbook have improved the quality of risk assessment science by providing accurate and reliable information on exposure factors
- ◆ The Handbooks have become the primary source of human exposure factors data among exposure assessors at EPA and outside, both nationally and internationally.
 - EPA's Superfund office uses the Handbook recommendations in their assessments of hazardous waste sites to determine appropriate cleanup levels.
 - EPA Office of Solid Waste in support of their regulations
 - EPA's Office of Pesticides used the recommendations in the Handbook to derive default exposure factors in the 1997 Residential Standard Operating Procedures (SOPs) (U.S. EPA, 1997b).
 - Requests for information and copies of both the Exposure Factors Handbook and the Child-Specific Exposure Factors Handbook have come from Italy, Germany, England, Romania, Cuba, Spain, Japan, France, Korea, Canada, to name a few.
 - The European community has also used the Handbook as a model for the development of Exposure Factors Sourcebook (Zaleski and Gephart, 2000). This document summarizes data similar to that of the Exposure Factors Handbook, except that the data are specific to Europe.

EXPOSURE FACTORS CURRENT AND FUTURE ACTIVITIES

- ◆ Exposure Factors Distributions
 - Research on correlations among exposure factors
- ◆ Food Intake Factors
 - Composition of Individual's Diet using the USDA Continuing Survey of Food Intake by Individuals 1994 – 96, 98
 - Fat Intake Analysis using the USDA Continuing Survey of Food Intake by Individuals 1994 – 96, 98
 - Fish consumption rates for high end populations using data from existing surveys
- ◆ Soil Intake Rates
 - Study of 20 families to estimate soil intake for both adults and children
 - Developing methodology to estimate soil intake rates based on biological and environmental data on arsenic
 - Conduct a workshop on soil intake rates in 2005
- ◆ Example Exposure Scenarios – available in June 2004
- ◆ Developing Pesticide Exposure Factors by 2005